FIELD SAMPLING PLAN
FOR THE
WEST VERMONT STREET CONTAMINATION SITE
SPEEDWAY, MARION COUNTY, INDIANA

Prepared for
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

Prepared by
WESTON SOLUTIONS, INC.
Region V Superfund Technical Assessment and Response Team

May 18, 2010

Approved by: _____ Date: _____
U.S. EPA Region V
On-Scene Coordinator

Project Dates of Sampling:	May 21, 2010
CERCLA Site/Spill Identifier No.:	B5UJ
Contractor Organization:	Weston Solutions, Inc.
Contract Name:	START III
Contract No.:	EP-S5-06-04
Technical Direction Document No.:	S05-0001-0910-024
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ACRONYM LIST

ATSDR	Agency for Toxic Substances and Disease Registry
CFR	Code of Federal Regulations
COC	Chain-of-Custody
ERRS	Emergency and Rapid Response Services
FSP	Field Sampling Plan
IDEM	Indiana Department of Environmental Management
IDW	Investigation Derived Waste
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MS/MSD	Matrix Spike/ Matrix Spike Duplicate
OSC	On-Scene Coordinator
PCE or PERC	tetrachlorethylene
PPE	Personal Protective Equipment
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
SOP	Standard Operating Procedure
START	Superfund Technical Assessment and Response Team
TBD	To Be Determined
TCE	trichloroethylene
µg/L	micrograms per liter
U.S. EPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VOC	Volatile Organic Compound
VRP	Voluntary Remediation Program

TABLE OF CONTENTS

Section **Page**

LIST OF TABLES

LIST OF FIGURES

LIST OF SOPS

1.0 Introduction

This Field Sampling Plan (FSP) identifies the data collection activities and associated quality assurance/quality control (QA/QC) measures specific to the West Vermont Street Contamination Site (the Site) located in Speedway, Marion County, Indiana. All data will be generated in accordance with the quality requirements described in the *START III Generic QAPP*, dated June 2006. The purpose of this FSP is to describe site-specific tasks that will be performed in support of the stated objectives. The FSP will reference back to the QAPP for generic tasks common to all data collection activities including routine procedures for sampling and analysis, sample documentation, equipment decontamination, sample handling, data management, assessment and data review. Additional site-specific procedures and/or modifications to procedures described in the *START III Generic QAPP* are described in the following FSP elements.

This FSP is prepared, reviewed, and approved in accordance with the procedures detailed in the *START III Generic QAPP*. Any deviations or modifications to the approved FSP will be documented using **Table 1: FSP Revision Form.**

2.0 Project Management and FSP Distribution and Project Team Member List

Management of the Site will be as documented in the *START III Generic QAPP*. Refer to the *START III Generic QAPP* for an organizational chart, communication pathways, personnel responsibilities and qualifications, and special personnel training requirements.

The following personnel will be involved in planning and/or technical activities performed for this data collection activity. Each will receive a copy of the approved FSP. A copy of the FSP will also be retained in the Site file.

Personnel	Title	Organization	Phone Number	Email
Brian Schlieger	OSC	U.S. EPA	312-886-0130	schlieger.brian@epamail.epa.gov
Shelly Lam	OSC	U.S. EPA	317-417-0980	Lam.Shelly@epamail.epa.gov
Ben Maradkel	Project Manager	START	847-918-4084	ben.maradkel@westonsolutions.com
Jay Rauh	Project Leader/Site Health and Safety	START	312-424-3315	jay.rauh@westonsolutions.com
Marcus Muccianti	Field Team	START	312-424-3305	marcus.muccianti@westonsolutions.com
Tonya Balla	Health and Safety	START	847-528-2623	tonya.balla@westonsolutions.com
Lisa Graczyk	QA Reviewer	START	312-424-3339	lgraczyk@dynamac.com

Notes:
OSC – On-Scene Coordinator
QA – Quality Assurance
START – Superfund Technical Assessment and Response Team
U.S. EPA – United States Environmental Protection Agency

3.0 Planning and Problem Definition

3.1 Problem Definition

During routine sampling conducted by the Marion County Health Department, elevated levels of vinyl chloride (VC) contamination were identified in drinking water samples taken at three residences in Speedway, Indiana that use private drinking water wells to obtain their potable water. Concentrations of VC in the drinking water of 4042 West Vermont Street, 4018 West Vermont Street, and 4012 Cossell Road exceeded the United States Environmental Protection Agency's (U.S. EPA) Maximum Contaminant Level (MCL) of 2 micrograms per liter (µg/L) for VC. VC vapors have the potential to migrate from groundwater, through soil and concrete, and into buildings in a process called vapor intrusion. The Indiana Department of Environmental Management (IDEM) became aware of the contamination and contacted U.S. EPA for assistance. Although the source of the contamination is presently unknown, investigations to determine the source are ongoing. The Site is surrounded by industrial and residential properties. There are two IDEM Voluntary Remediation Program (VRP) sites in the area, and General Motor's Allison Transmission facility borders the site on the north and northwest.

One of the potentially responsible parties (PRP) injected CAP18, a vegetable oil-based biostimulant, to enhance bioremediation of tetrachlorethylene (PCE or PERC) and trichloroethylene (TCE). CAP18 stimulates the dechlorination process and can increase VC concentrations. U.S. EPA will conduct a site assessment to investigate whether CAP18 increased VC concentrations at the residential properties.

3.2 Site History and Background

U.S. EPA received a request from IDEM to investigate whether there is an imminent human health and/or environmental threat at the Site through ingestion of VC from drinking impacted groundwater at residential homes. The Site consists of a residential area bound by W Vermont Street on the south, Holt Road on the east, W Alley 700N on the north, and Grand Avenue on the west in Speedway, Marion County, Indiana (Figure 3-1). The Site is located in a mixed use industrial and residential area. The Speedway, Indiana municipal water treatment facility is located directly to the south, Big Eagle Creek and industrial properties are located to the west, residential and industrial properties are located to the east, and industrial properties are located to the north.

When the contamination was discovered, U.S. EPA immediately initiated corrective measures by supplying bottled drinking water to the residents with affected wells. U.S. EPA's Emergency Rapid Response Services (ERRS), Environmental Restoration, LLC, was tasked with installing air stripper and carbon filter pretreatment devices at the three residences to remove the volatile components from the water. The treatment systems were installed in October 2009, November 2009, and February 2010.

3.3 Contaminants of Concern/Target Analytes

The contaminants of concern at the Site are volatile organic compounds (VOCs). The primary VOC of concern is VC. Analyses for Total VOCs including all ethene and volatile fatty acids in the water will be used to determine the water quality previous to entering any water treatment system at each of the residences.

4.0 Project Description and Schedule

START will mobilize to the Site on or about May 20, 2010 to collect up to 10 residential groundwater and groundwater monitoring well samples plus one duplicate.

A commercial laboratory will provide analytical services. START will provide sample coordination including laboratory procurement and sample shipment. Sample labels and chain-of-custody (COC) paperwork will be generated by START. Samples will be packaged properly by START and then transported directly to the laboratory. The turn-around time for the sample data will be 10 business days. The laboratory analytical results will be reviewed and validated by a START chemist within two weeks of data receipt from the laboratory. A summary report of the investigation sampling results will be submitted to U.S. EPA within two weeks of receipt of the validated data.

5.0 Project Quality Objectives

5.1 Project Objectives

The objective of sampling activities will be to determine the extent of groundwater contamination at the Site and if biodegradation of contaminants is occurring.

5.2 Measurement and Performance Criteria

Generic measurement and performance criteria described in the *START III Generic QAPP* will be used to ensure that data are sufficiently sensitive, precise, accurate, and representative to support site decisions.

5.3 Data Quality Objectives

Data quality objectives address requirements that include when, where, and how to collect samples, the number of samples, and the limits on tolerable error rates. These steps should periodically be revisited as new information about a problem is learned. Sections 4.0 and 6.0 address these objectives.

In addition, data quality objectives address the analytical screening levels to be used to make decisions. There is one type of sample to be collected at the Site that will be compared to different criteria. This is described below.

The groundwater sample results will be compared to the site specific groundwater quality standards established by the Agency for Toxic Substances and Disease Registry ATSDR to determine whether an emergency response is needed pursuant to 40 Code of Federal Regulations (CFR) Part 300. If hazardous wastes are shown to be present at the site, then a removal action would be warranted according to the National Contingency Plan (40 CFR 300.415).

6.0 Sampling Design

Sampling will be initiated on or about May 21, 2010. START will collect up to ten groundwater samples and a field duplicate from residential drinking water wells or groundwater monitoring wells. Three of the samples plus the duplicate will be collected from the residences of 4018 W. Vermont, 4042 W. Vermont, and 4012 Cossell. The remaining samples will be collected from other residences or groundwater monitoring wells in or near the neighborhood. Any additional sampling locations will be determined by the OSC and will be dependent upon U.S. EPA obtaining additional access agreements. The following procedure will be followed in the order as shown for collecting residential groundwater well samples.

1. Locate sampling points within the on-site building. The sampling location should be a spigot or faucet situated on the water line prior to groundwater entering any water treatment system. Some sampling locations may be situated outside the building, including the water well pipe.
2. Purge the system for at least 15 minutes prior to performing any sampling. If sampling from a well, remove three volumes of well water or until purged dry with a peristaltic pump or bailer.
3. Don fresh sampling gloves prior to commencing sampling at each new sampling location, even if the sampling location is in the same home as the previous sampling location.
4. Collect water quality parameters using the pH/temperature/conductivity meters. Collect at least two consecutive readings that are within ±0.1 units for pH, ±3 percent for conductivity, ±0.1 ^{o}C for temperature; and ±10 percent for turbidity.
5. Collect samples in the designated containers (see Table 2). VOC samples should be collected without aeration devices in place and at the slowest possible flow rate.
6. Record all information on the residential well sampling form (Attachment B) or in the site logbook. Data recorded must include all purge data, meter readings, sampling location (address and spigot/faucet location from which the sample was collected), sampling date, and sampling times.
7. Label all sample jars immediately at the collection site with sample name, date, and time.

The following standard low-flow groundwater sampling procedure will be followed in the order as shown for collecting monitoring well samples.

1. Measure the well diameter and depth of well. Using an oil-water interface probe, measure the depth to liquid and water in the well and determine if a layer of oil is floating

on the water table. Calculate the volume of water (liquid) in the well and thickness of the oil layer, if present. Record all information in the site logbook.

2. Purge three well volumes using a bailer or peristaltic pump.
3. Record any observations noted about water as it is purged, including odor, sheen, and photo-ionization-detector screening results.
4. Don fresh sampling gloves prior to commencing sampling at each new sampling location.
5. Collect water level and water quality parameters using the pH/temperature/conductivity/turbidity meters. Collect at least two consecutive readings that are within ±0.1 standard units for pH, ±3 percent (%) for conductivity, ±0.1 degree Celsius for temperature; and ±10 % for turbidity.
6. Collect samples in the designated containers (see Table 2). VOC samples should be collected without aeration devices in place and at the slowest possible flow rate if using the peristaltic pump.
7. Label all sample jars immediately at the collection site with sample name, date, and time.

The sample container, volume, and preservation requirements are presented in **Table 2: Sampling and Analysis Summary.**

6.1 Sample Numbering System

All samples for analysis, including QC samples, will be given a unique sample number. The sample numbers will be recorded in the field logbook, the COC paperwork, and the shipment documents.

START will assign each sample a project sample number. The project sample number highlights the suspected contaminated area and location, and will be used for documentation purposes in field logbooks, as well as for presentation of the analytical data in memoranda and reports. The project sample numbering system will be composed of the components below.

Project Identifier

The first part of the project sample numbering system will be the three-character designation VSC. VSC corresponds to Vermont Street Contamination.

Sample Location

This shall consist of the address where the sample is being performed.

- 4042Vermont refers to the sample collected at 4042 West Vermont Street.
- 4018Vermont refers to the sample collected at 4018 West Vermont Street.
- 4012Cossell refers to the sample collected at 4012 West Cossell Road.
- MW01 refers to the sample collected from the groundwater monitoring well named

MW01

Sample Type and Sequence Identifier

This shall consist of two characters indentifying the type of sample being collected.

- GW refers to a groundwater sample

Should more than one sample be collected from the same address a one or two character sequence identifier will be added.

- GW refers to the first sample collected at a single address location.
- GW2 refers to the second sample collected at a single address location.
- GWD refers to the duplicate collected at the 4012 Cossell address
- GWX refers to the nth sample collected from the neighborhood

Sample Date

This shall consist of a six digit date (*i.e.*, 052110) for May 21, 2010.

Some examples of the START project sample numbering system are as follows:

- VSC-4042Vermont-GW2-052110: West Vermont Street Contamination Site; sample collected at 4042 West Vermont Street; the second groundwater sample collected at this address; sample collected on May 21, 2010.

- VSC-4012Cossell-GWD-052110: West Vermont Street Contamination Site; sample collected at 4012 West Cossell Road; the duplicate groundwater sample collected at this address; sample collected on May 21, 2010.

- VSC-XXXXXXX-GW-052110: West Vermont Street Contamination Site; sample collected at XXXXXXXX; the first groundwater sample collected at this address; sample collected on May 21, 2010.

    - XXXXXXX refers to the address and street the sample was taken

- VSC-MW01-GW-052110: West Vermont Street Contamination Site; sample collected at monitoring well "MW01"; the first groundwater sample collected at this location; sample collected on May 21, 2010.

6.2 Management of Investigation-Derived Wastes

For purposes of this FSP, investigation-derived wastes (IDW) are defined as any byproduct of the field activities that is suspected or known to be contaminated with hazardous substances. The performance of field activities will produce waste products, such as spent sampling supplies

and expendable Personal Protective Equipment (PPE). It is expected that disposable equipment will be used for all sample collection and therefore, no decontamination water will be generated. All disposable waste generated during the site assessment will be placed in trash bags and disposed of as general refuse. If required, disposal arrangements will be executed in accordance with appropriate local, state, or federal regulations. START will refer to the U.S. EPA's *Management of Investigation-Derived Wastes During Site Inspections* (U.S. EPA, 1991) guidance on off-site disposal policies, if this action is deemed necessary.

7.0 Sampling Procedures

7.1 Sampling Standard Operating Procedures

The following Standard Operating Procedures (SOP) will be used during the site evaluation:

- WESTON® SOP 202 – Residential Groundwater Sampling

7.2 Decontamination Procedures

General decontamination procedures are described in Section B.2 of the *START III Generic QAPP*.

The following standard decontamination protocols will be used:

- All disposable sampling supplies and PPE will be bagged and disposed of as general refuse.

8.0 Sample Handling, Tracking, and Custody Procedures

All samples will be identified, handled, shipped, tracked, and maintained under COC, in accordance with *START III Generic QAPP* Section B.3.

9.0 Field Analytical Methods and Procedures

9.1 Field Analytical Methods and Standard Operating Procedures

Field analytical methods will not be employed during the site assessment

9.2 Field Testing Laboratory

A field testing laboratory is not anticipated at this time.

9.3 Screening/Confirmatory Analyses

Screening/Confirmatory analyses are not anticipated at this time.

10.0 Fixed Laboratory Analytical Methods and Procedures

A U.S. EPA-certified commercial laboratory will be used. The laboratory name, address, contact person, telephone number, and fax number are as follows:

Microseeps, Inc.
220 William Pitt Way
Pittsburgh, PA 15238

The laboratory analytical methods and procedures are detailed in Table 2 of this FSP.

11.0 Quality Control Activities

11.1 Field Quality Control

One field duplicate will be collected for every ten samples**.** Extra sample volume will be collected for a laboratory MS/MSD for every twenty samples. A trip blank will accompany all shipments of VOC samples.

11.2 Analytical Quality Control

QC for analytical procedures will be performed at the frequency described in *START III Generic QAPP*, Tables 5 and 6. In addition, method-specific QC requirements will be used to ensure data quality.

11.3 Performance Evaluation Samples

Performance Evaluation Samples will not be collected during this sampling event.

12.0 Documentation, Records, and Data Management

Documentation, record keeping, and data management activities will be conducted in accordance with the *START III Generic QAPP*, Section B.10.

13.0 Quality Assurance Assessment and Corrective Actions

No field audits will be conducted due to the short-term sampling activity.

14.0 Reports to Management

Reports to management will be written and distributed in accordance with the *START III Generic QAPP,* Section C.

15.0 Steps 1, 2 and 3: Data Review Requirements and Procedures

Step 1: Data collection activities, including sample collection and data generation, will be verified in accordance with the *START III Generic QAPP*, Section D.

Step 2: Data will be validated in accordance with the *START III Generic QAPP*, Section D. A WESTON START chemist will validate the data.

Step 3: Data will be reviewed for usability in accordance with the *START III Generic QAPP*, Section D.

TABLES

Table 1
FSP Revision Form

Site: West Vermont Street Contamination Site, Speedway, Marion County, Indiana
OSC: Brian Schlieger
TDD: S05-0910-024

Date	Rev. No.	Proposed Change to FSP/QAPP	Reason for Change of Scope/Procedures	FSP Section Superseded	Requested By	Approved By

Table 2
Sampling and Analysis Summary

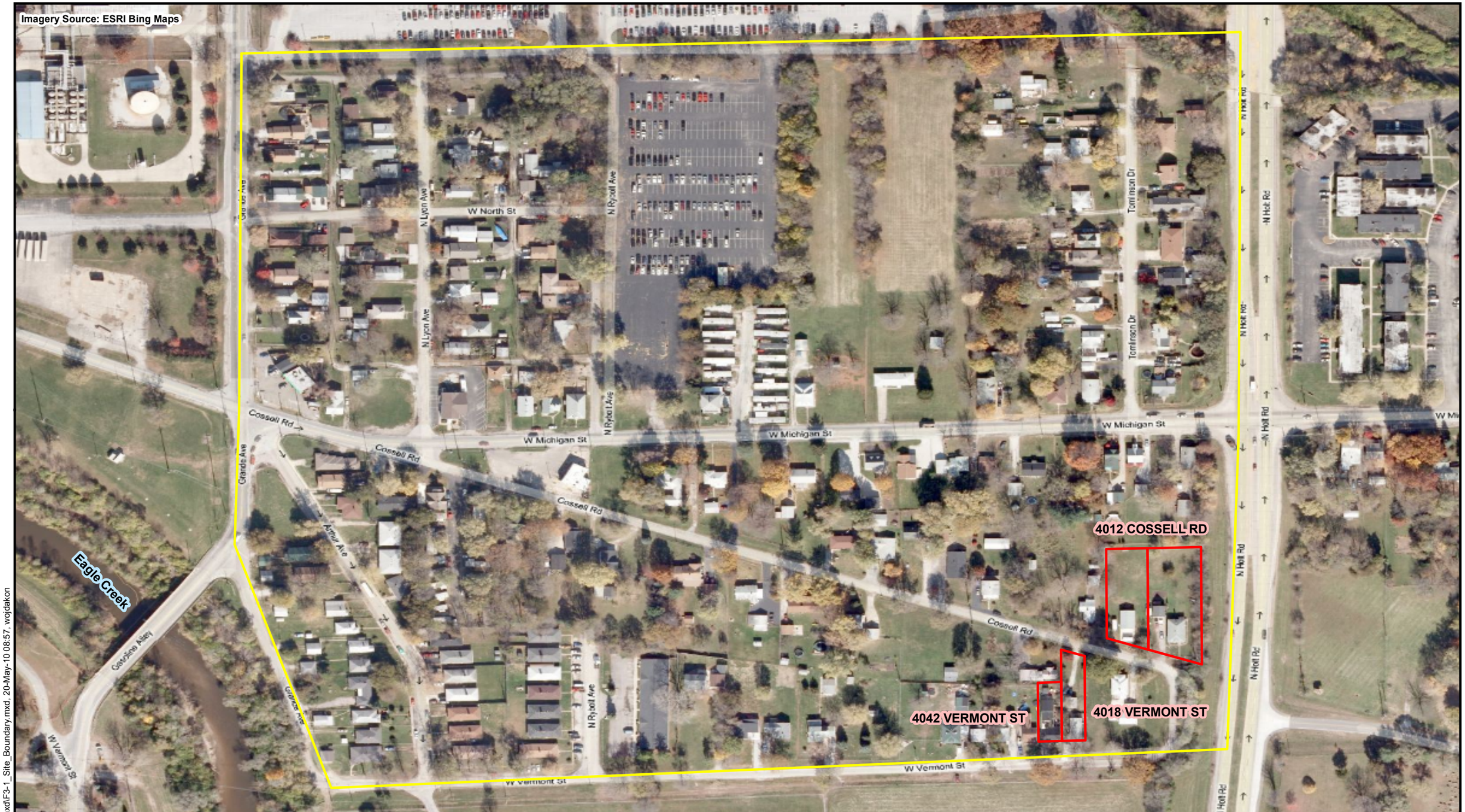
Site: West Vermont Street Contamination Site, Speedway, Marion County, Indiana
OSC: Brian Schlieger
TDD: S05-0910-024

Matrix	Analytical Parameter	Analytical Method	Containers (Numbers, Size, and Type)	Preservation Requirements	No. of Sampling Locations	No. of Field Duplicate Pairs	No. of MS/MSD Pairs	No. of VOA Trip Blanks	No. of Equip./ Rinsate Blanks	Total No. of Samples to Lab	Holding Time
Water	TCL VOCs	8260B	Four 40-milliliter glass vials with PTFE-lined septa and open-top screw-caps	Hydrochloric Acid; cool to 4°C	10	1	1	1	0	12	14 days
Water	Ethene	AM20GAX[1]	Two 40-milliliter glass vials with PTFE-lined septa and open-top screw-caps	Trisodium phosphate; cool to 4°C	10	1	1	0	0	11	14 days
Water	Volatile Fatty Acids	AM23G[1]	Two 40-milliliter glass vials with PTFE-lined septa and open-top screw-caps	Benzalkonkum chloride; cool to 4°C	10	1	1	0	0	11	14 days

Note:
Trip blanks are not required for inorganic samples.
Total number of samples to the laboratory does not include MS/MSD or spike/duplicate samples. However, please note that MS/MSD or spike/duplicate analysis may require additional sample volume.
[1] Microseeps method identification numbers.

G – Glass
L - liter
MS/MSD – Matrix Spike/Matrix Spike Duplicate
VOCs – Volatile Organic Compounds

FIGURES



Legend

- Sampled Parcels
- Site Boundary

0 200 Feet

N

NOTES:

Prepared For:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-0910-024
DCN: 816-2A-AGZS

Prepared By:
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Figure 3-1
Site Boundary Map
West Vermont Street Contamination
Speedway, Marion County, Indiana

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STANDARD OPERATING PROCEDURES (SOPS)

SUPERFUND TECHNICAL ASSESSMENT RESPONSE TEAM
STANDARD OPERATING PROCEDURE

SOP 202
RESIDENTIAL GROUNDWATER SAMPLING

1.0 INTRODUCTION

The following Standard Operating Procedure (SOP) has been prepared to assist Roy F. Weston, Inc. (WESTON®), Superfund Technical Assessment Response Team (START) members with a step-by-step guide and the recommended protocol for sampling residential groundwater.

Ingestion or contact with hazardous chemicals introduced through potable water supplies is a great threat to the public. START members generally perform residential groundwater sampling for the following reasons:

a. To determine the presence and magnitude of contamination;
b. To delineate the extent of contamination; or
c. To evaluate the effectiveness of in-place treatment systems.

Parameters most frequently sampled for are volatile organic compounds (VOCs), metals, base/neutral/acids (BNA), PCB/Pesticide compounds and cyanide compounds; therefore, these parameters are the focus of this SOP.

2.0 MATERIALS REQUIRED

2.1 VOC Sampling Materials

The following materials are required for collecting VOC samples:

- Sampling plan
- Maps
- Personal protective equipment (as specified in the Health and Safety Plan)
- 40-mL VOA vials with Teflon™ septums
- Cooler (size dependent on number of samples)
- Ice or blue ice for sample preservation
- Hydrochloric acid (HCl) solution for preserving VOC samples with BTEX compounds or to comply with Contract Laboratory Programs (CLP) laboratory requirements
- Sample labels/tags
- pH/temperature/conductivity meter
- Chain-of-Custody forms
- Paper towels

- Ziploc® bags or Whirl-Pacs®
- Plastic garbage bags
- Nitrile or latex sample gloves
- Shipping supplies (i.e., Federal Express labels, tape, etc.)

2.2 Metals Sampling Materials

The following materials are required to sample for metals in groundwater:

- 1-L polyethylene bottles
- Cooler (size dependent on number of samples)
- Ice or blue ice for sample preservation
- Sample labels and tags
- pH/temperature/conductivity meter
- Chain-of-Custody forms
- Paper towels
- Ziploc® bags or Whirl-Pacs®
- Plastic garbage bags
- Nitrile or latex sample gloves
- Shipping supplies (i.e., Federal Express labels, tape, etc.)
- Nitric Acid (HNO_3) solution (20%)

2.3 BNA Sampling Materials

The following materials are required for collecting BNA samples:

- 1-L amber bottles (provide enough bottles for a triple volume at each sampling location)
- Cooler (size dependent on number of samples)
- Ice or blue ice for sample preservation
- Sample labels/tags
- Ziploc® bags or Whirl-Pacs®
- Plastic garbage bags
- Nitrile or latex sample gloves
- pH/temperature/conductivity meter
- Chain-of-Custody forms
- Paper towels
- Shipping supplies (i.e., Federal Express labels, tape, etc.)

2.4 PCB/Pesticide Sampling Materials

The following materials are required for collecting PCB/pesticide samples:

- 1-L amber bottles (provide enough bottles for a triple volume at each sampling location)
- Cooler (size dependent on number of samples)
- Ice or blue ice for sample preservation
- Sample labels/tags
- pH/temperature/conductivity meter
- Chain-of-Custody forms
- Paper towels
- Ziploc® bags or Whirl-Pacs®
- Plastic garbage bags
- Nitrile or latex sample gloves
- Shipping supplies (i.e., Federal Express labels, tape, etc.)

2.5 Cyanide Sampling Materials

The following materials are required for collecting cyanide samples:

- 1-L polyethylene bottles
- Sodium Hydroxide (NaOH) solution (50%)
- Cooler (size dependent on number of samples)
- Ice or blue ice for sample preservation
- Sample labels/tags
- pH/temperature/conductivity meter
- Chain-of-Custody forms
- Paper towels
- Ziploc® bags or Whirl-Pacs®
- Plastic garbage bags
- Nitrile or latex sample gloves
- Shipping supplies (i.e., Federal Express labels, tape, etc.)

3.0 SAFETY PRECAUTIONS

Due to the levels and concentrations of contaminants normally found in groundwater, exposure to these chemicals does not usually present a threat to the sampler. Physical hazards, such as explosion, may exist. These threats may be present in outdoor well casings.

In addition, the following precautions are to be taken:

1. Record head space readings using an flame ionization detector (Micro FID) or a Multi RAE 5 Gas detector.
2. Ventilate the head space to alleviate the aforementioned hazards.
3. Follow the procedures outlined in START SOP No. 201, Monitoring Well Sampling, if you are required to sample from the well casing.
4. Wear nitrile or latex gloves to prevent skin contact with water, as well as to lessen the chances of contaminating the samples with essential skin oils, etc.
5. Wear safety glasses or splash goggles when adding caustic or acid preservatives.

4.0 SAMPLING PROCEDURES

4.1 General Procedures

1. Present your credentials as an EPA contractor and answer any questions that you can with the exception of policy questions.
2. Politely, but firmly refer the resident to the On-Scene Coordinator (OSC) if the resident poses questions concerning policies or future actions at the site.
3. Locate sampling points within the home. These may vary depending on the type of sampling performed.
4. Purge the system for at least 15 minutes prior to performing any sampling. Approximately 75 gallons of water will cycle through the system, allowing a representative groundwater sample to be obtained.
5. Use the pH/temperature/conductivity meter to ensure that you have flushed the system and that you have introduced groundwater into the system. Normal groundwater temperatures should range from the low 50s to the mid 60s at the end of the purge period.
6. Obtain three readings of all parameters approximately 1 to 2 minutes apart. WESTON® meters are not temperature compensating; therefore, adjustments must be made to obtain accurate pH and conductivity readings.
7. Collect samples when you have obtained three consecutive parameter readings that are within 10% of each other.
8. Record all information in the site logbook. Notations must include all purge data, meter readings and sample times.
9. Use a unique repeatable designator to protect the resident's privacy when assigning sample identification designators. *Do not use the resident's name or address*. Where more than one volume is required at a sampling point, all samples will have the same designator.
10. Label all sample jars immediately at the collection site.
11. Wear fresh sample gloves when collecting water samples at each new sample location, even within the same home.

4.2 VOC Sampling Procedures

1. Wear sample gloves.
2. Place one drop of HCl in the vial if preservation is required.
3. Collect samples in the designated vials. A triple volume sample must be collected at each location. *Note: VOC samples should be collected without aeration devices in place and at the slowest possible flow.*
4. Fill the vial slowly until a convex meniscus is formed.
5. Add a small amount of the water to the cap.
6. Affix the cap to the vial.
7. Gently shake the vial uniformly distribute the preservative.
8. Turn the vial upside down and strike the vial sharply on the palm of the hand and observe for bubbles. (Bubbles can not be present in the sample.)
9. Dry the vial with a paper towel.
10. Label the vial immediately.
11. Collect field blank samples at the rate of 10% of the total number of samples collected per day. A minimum of one field blank sample must be collected.
12. Place the samples on ice as soon as possible and cool to 4° C (39° F).

4.3 Metals Sampling Procedures

1. Wear sample gloves.
2. Collect samples in the designated bottles leaving enough room in the bottle for the addition of the preservative.
3. Preserve the sample to a pH $\leq$ 2 by slowly adding HNO_3 solution (20%) with a Pasteur pipette.
4. Affix the cap to the bottle.
5. Gently shake the bottle to uniformly distribute the preservative.
6. Uncap the bottle and check the sample with pH paper. If the pH is not $\leq$ 2, repeat steps 4 - 7.
7. Dry the bottle with a paper towel.
8. Label the bottle immediately.
9. Collect field blank samples at the rate of 10% of the total number of samples collected per day. (A minimum of one field blank sample must be collected.)
10. Place the samples on ice as soon as possible and cool to 4° C (39° F).

4.4 BNA Sampling Procedures

1. Wear sample gloves.
2. Collect samples in the designated bottles. A triple volume sample must be collected at each location.
3. Allow room in the bottle for expansion. *Do not overfill the bottle.*
4. Affix the cap to the bottle.
5. Dry the bottle with a paper towel.
6. Label the bottle immediately.
7. Collect field blank samples at the rate of 10% of the total number of samples collected per day. (A minimum of one field blank sample must be collected.)
8. Place the samples on ice as soon as possible and cool to 4° C (39° F).

4.5 PCB/Pesticide Sampling Procedures

1. Wear sample gloves.
2. Collect samples in the designated bottles. A triple volume sample must be collected at each location.
3. Allow room in the bottle for expansion. *Do not overfill the bottle.*
4. Affix the cap to the bottle.
5. Dry the bottle with a paper towel.
6. Label the bottle immediately.
7. Collect field blank samples at the rate of 10% of the total number of samples collected per day. (A minimum of one field blank sample must be collected.)
8. Place the samples on ice as soon as possible and cool to 4° C (39° F).

4.6 Cyanide Sampling Procedures

1. Wear sample gloves.
2. Collect the sample in the designated bottles leaving enough room in the bottle for the addition of the preservative.
3. Preserve the sample to a pH $\geq$ 12 by slowly adding NaOH solution (50%) with a Pasteur pipette.
4. Affix the cap to the bottle.
5. Gently shake the container to uniformly distribute the preservative.
6. Uncap the bottle and check the sample with pH paper. If the pH is not $\geq$ 12, repeat steps 4 - 7.
7. Recap the bottle and turn it upside down and strike the bottle sharply on the palm of the hand and observe for bubbles. Bubbles can not be present in the sample.
8. Dry the bottle with a paper towel.
9. Label the bottle immediately.

10. Collect field blank samples at the rate of 10% of the total number of samples collected per day. A minimum of one field blank sample must be collected.
11. Place the samples on ice as soon as possible and cool to 4° C (39° F).

Most sites require field blanks for Quality Assurance/Quality Control (QA/QC) purposes; however, at some sites, a higher level of QA/QC may be required and trip blanks or duplicates may be necessary.

A copy of the Residential Drinking Water Quality Purge/Data Sheet is included for your reference (see Attachment 1)

5.0 REFERENCES

EPA. 1991. *Compendium of ERT Groundwater Sampling Procedures.* Office of Solid Waste and Emergency Response, Washington, DC. EPA/540/P-91/008.

WESTON® (Roy F. Weston, Inc.). 1993. *Standard Practices Manual for Potable Water Sampling.* West Chester, PA.

Attachments: 1

ATTACHMENT 1

RESIDENTIAL DRINKING WATER QUALITY PURGE/DATA SHEET

Date: _____

Time: _____

Residential Drinking Water Quality Purge / Data Sheet

Resident's Name: _____

Address: _____

_____

_____

Telephone Number: _____(H)

_____(W)

Resident ID #: _____ (Use on all sample correspondence)

Filter System: Yes No

Purge Method: 15 minute (preferred)

Temperature (Temperature should be between 50º F and middle 60º F)

Purging Location (Circle One): Kitchen Tap Filter Well Outlet

Water Quality / Purge Data

Interval	Time	Temp	Turbidity
Start			H M L N
During			H M L N
During			H M L N
During			H M L N
During			H M L N
During			H M L N
During			H M L N
During			H M L N
Final			H M L N

H - High: Opaque/Muddy/Silty M - Medium: Translucent/Cloudy L - Low: Transparent/Cloudy N - None: Clear/No Visible Silt